



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/540,455

06/22/2005

Masaki Nobuhiro

511891-005

1423

27805

7590

01/16/2009

THOMPSON HINE L.L.P.
Intellectual Property Group
P.O. BOX 8801
DAYTON, OH 45401-8801

EXAMINER

RIFKIN, BEN M

ART UNIT

PAPER NUMBER

2129

MAIL DATE

DELIVERY MODE

01/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,455	Applicant(s) NOBUHIRO ET AL.	
	Examiner Ben M. Rifkin	Art Unit 2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on September 29, 2008 has been entered.

1. The instant application having Application No. 10540455 has a total of 4 claims, of which claim 3 has been cancelled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claim 4** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and

Art Unit: 2129

distinctly claim the subject matter which applicant regards as the invention.

As per claim 4, the applicant appears to be attempting to patent a wide variety of potential circuit connections. However, the claim is so confusing the examiner is unable to determine just what circuit is being claimed. With the claim language being so vague and indefinite, it is impossible for the examiner to easily match up the claimed limitations to the prior art, as there is no viable diagram within the applicant's disclosure that allows the examiner to understand the claim. The applicant will need to be more clear as to what portions of the circuit are connected where in order to overcome the rejection under U.S.C. 112.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2129

6. Claims 1-2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Watanabe** (US 5837143 A) in view of **Fukui** (US 7019227 B2) and **Terada** et al (US 6160324 A).

As per **claim 1**, Watanabe discloses, "A teaching pendant enabling device including first and second enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each configured to assume a first off-state when unoperated, an On-State when half operated, and a second off-state when completely operated ... The teaching pendant enabling device comprising : (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). However, Watanabe fails to explicitly disclose, "Wherein the first deadman switch (1a) has: first to fourth contacts (msw1a, msw2a, msw3a, msw4a) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; and first and second main contacts (swa, sw2a) each configured to assume an offstate at the first and third positions and an on-

Art Unit: 2129

state at the second position; Wherein the second deadman switch(1B) has: fifth to eight contacts (ms1b, msw2b, msw3b, msw4b) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition; Third and fourth main contacts (sw1b, sw2b) each configured to assume an off state at the first and third positions and an on-state at the second position);

Wherein the two switching means are first and second relays (R1,R2), the first relay (R1) having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second relay (R2) having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23);

Wherein the first enabling signal circuit (c1) includes the first normally open contact (R11) of the first relay connected in series with a parallel circuit parallel connecting the first and third main contacts (Sw1a,sw1b); and the second enabling signal circuit (c2) includes the third normally open contact (R21) of the second relay connected in series with a parallel circuit parallel connecting the second and fourth main contacts (Sw2a, sw2b); and

Wherein the first monitor circuit (C3) connects the first relay (R1) in series

Art Unit: 2129

with a parallel circuit parallel connecting a first series circuit (C31) in which the first and fifth contacts (msw1a, msw1b) and the tenth normally closed contact R23 of the second relay are connected in series and a second series circuit (C32) in which the third and seventh contacts (msw3a, msw3b) and the second normally open contact (R12) of the first relay are connected in series; and the second monitor circuit (C4) connects the second relay (R2) in series with a parallel circuit parallel-connecting a third series circuit (C41) in which the second and sixth contacts (Msw2a, msw2b) and the ninth normally closed contact (R12) of the first relay are connected in series, and a fourth series circuit (C42) in which the fourth and eighth contacts (Msw4a, msw4b) and the fourth normally open contact (R22) of the second relay are connected in series"

Fukui discloses, "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and ... monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN:

Art Unit: 2129

This denotes various circuits associated with the teaching pendant. The two switching means are shown in figure 20, R1 and L1 respectively. The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3) "Wherein the first deadman switch (1a) has: first to fourth contacts (msw1a, msw2a, msw3a, msw4a) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: Looking particularly at Figure 20, this circuit discloses circuits L3-1, and L3-2 which correspond to these 4 switches. When combined with the Terada reference which discloses using a plurality of circuits for the development. As the Fukui reference clearly discloses a circuit that is a match for the circuit disclosed in this portion of the claim, merely replicating a second version of the same circuit is covered by the combination of Fukui and Terada). "and first and second main contacts (sw1a, sw2a) each configured to assume an offstate at the first and third positions and an on-state at the second position" (Fig.1-4, 8-29, and Fig.35-36 along with associated

Art Unit: 2129

paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, L1 and L2 disclose this particular aspect of the claim*). "Wherein the second deadman switch(1B) has: fifth to eight contacts (ms1b, msw2b, msw3b, msw4b) each configured to become open or closed in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition;" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, this circuit discloses circuits R3-1, and R3-2 which correspond to these 4 switches. When combined with the Terada reference which discloses using a plurality of circuits for the development. As the Fukui reference clearly discloses a circuit that is a match for the circuit disclosed in this portion of the claim, merely replicating a second version of the same circuit is covered by the combination of Fukui and Terada*). "Third and fourth main contacts (sw1b, sw2b) each configured to assume an off state at the first and third positions and an on-state at the second position" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure*

Art Unit: 2129

20, R1 and R2 disclose this particular aspect of the claim).

"Wherein the two switching means are first and second relays (R1,R2), the first relay (R1) having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second relay (R2) having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23)" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, Circuit R1 is made up of switches RL1-1, RL1-2, and RL1-3 to cover the first aspect of the claim. RL2 is covered by RL2-1, RL2-2, and RL2-4.*"Wherein the first enabling signal circuit (c1) includes the first normally open contact (R11) of the first relay connected in series with a parallel circuit parallel connecting the first and third main contacts (Sw1a,sw1b); and the second enabling signal circuit (c2) includes the third normally open contact (R21) of the second relay connected in series with a parallel circuit parallel connecting the second and fourth main contacts (Sw2a, sw2b)" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, the "first circuit" including R1 and L1 as well as RL1-1 meets the limitations of this portion of the claim).*

Art Unit: 2129

"Wherein the first monitor circuit (C3) connects the first relay (R1) in series with a parallel circuit parallel connecting a first series circuit (C31) in which the first and fifth contacts (msw1a, msw1b) and the tenth normally closed contact R23 of the second relay are connected in series" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, this portion of the claim is covered by R3-1, L3-1, and RL1-4*). "and a second series circuit (C32) in which the third and seventh contacts (msw3a, msw3b) and the second normally open contact (R12) of the first relay are connected in series" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, this portion of the claim is covered by R3-2, L3-2, and RL1-3*). (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *Looking particularly at Figure 20, this portion of the claim is covered by R3-1, L3-1, RL1-4, R3-2, L3-2, and RL1-3, in combination with the discussion in Terada of the use of multiple circuits. The basic circuit structure of the applicant's invention is disclosed by the Fukui reference, the only difference being a second copy of the L3-R3 circuit set up found in Figure 20*).

Terada discloses, "the second normally open contact (R12) of the first relay are connected in series; and the second monitor circuit (C4) connects the second relay (R2) in series with a parallel circuit parallel-connecting a third series circuit (C41) in which the second and sixth contacts (Msw2a, msw2b) and the ninth normally closed contact (R12) of the first relay are connected in series, and a fourth series circuit (C42) in which the fourth and eighth contacts (Msw4a,msw4b) and the fourth normally open contact (R22) of the second relay are connected in series", "and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches", and "wherein the first and second deadman switches have six contacts respectively (C3, particularly L23-43; *EN: this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention. Further, Looking particularly at Figure 20 of the Fukui reference, this portion of the claim is covered by R3-1, L3-1, RL1-4, R3-2, L3-2, and RL1-3, in combination with the discussion in Terada of the use of multiple circuits. The basic circuit structure of the applicant's invention is disclosed by the Fukui reference, the*

Art Unit: 2129

only difference being a second copy of the L3-R3 circuit set up found in Figure 20 of the Fukui reference. Merely replicating a portion of a previously made invention is not a novel addition to the invention).

Watanabe, Fukui, and Terada analogous art because both involve deadman switches and robots.

At the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe with that of Fukui and Terada in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

The motivation for having the circuit make up include an emergency halt set up for both releasing and pushing too hard on the pendant in order to "prevent[[ing]] an accident due to contact with the machine during work" (Fukui, C1, L15-20) by using circuits to prepare a deadman switch to protect the user.

The motivation for having numerous circuits would be because using the circuits allows the system to "allow the a robot to operate on the condition that all of the plurality of switches are in an on state" (Terada, C3, L23-43) which adds redundancy to the circuit and protects the user from harm.

Art Unit: 2129

Therefore at the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe, Fukui, and Terada in order to have the circuit make up required in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

As per claim 2, Watanabe discloses, "A teaching pendant enabling device, including first and second enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance with operated states of first and second deadman switches each configured to assume a first off-state when unoperated, an On-State when half operated, and a second off-state when completely operated ... The teaching pendant enabling device comprising:(C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). "Assume an off-state at the first and third positions and an on state at the second position" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). "including a first

Art Unit: 2129

position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*).

However, Watanabe fails to explicitly disclose, "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and second monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches; Wherein the first deadman switch (1a) has: first to ... contacts (msw1a, msw21, msw3a, msw4a) each configured to become open or closed", "First and second main contacts (sw1a, sw2a) each configured to assume", "Wherein the second deadman switch (1b) has: Fifth to ... contacts (msw1b, msw2b, msw3b, msw4b) each configured to become open or closed", "Third and fourth main contacts (Sw1b, sw2b) each configured to assume", "Wherein the two switching means are first and second switching means, the first switching means having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second switching

Art Unit: 2129

means having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23) Wherein the first enabling signal circuit (c1) includes the first normally open contact (R11) of the first switching means connected in series with a parallel circuit parallel connecting the first and third main contacts (sw1a, sw1bb); and the second enabling signal circuit (c2) includes the third normally open contact (R21) of the second switching means connected in series with a parallel circuit parallel-connecting the second and fourth main contacts Wherein the first monitor circuit (c3) connects the first switching means in series with a parallel circuit parallel connecting a first series circuit (c31) in which the first and fifth contacts (Msw1a, msw1b) and tenth normally closed contact (R23) of the second switching means are connected in series and a second series circuit (c32) in which the third and seventh contacts (Msw3a, msw3b) and the second normally open contact (r12) of the first switching means are connected in series; and the second monitor circuit (C4) connects the second switching means in series with a parallel circuit parallel connecting a third series circuit (C41) in which the second and sixth contacts (msw2a, msw2b) and the ninth normally closed contact (r13) of the first switching means are connected in series, and a fourth series circuit (c42) in which the fourth and eighth

Art Unit: 2129

contacts (msw4a, msw4b) and the fourth normally open contact (R22) of the second switching means are connected in series"

Fukui discloses, "Two switching means configured to open/close an enabling signal output line of a respective one of the first and second enabling signal circuits; and first and ... monitor circuits each configured to actuate a respective one of the two switching means in accordance with results of detection of the operated states of the first and second deadman switches" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN:

This denotes various circuits associated with the teaching pendant. The two switching means are shown in figure 20, R1 and L1 respectively. The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3). "Wherein the first deadman switch (1a) has: first to ... contacts (msw1a, msw21, msw3a, msw4a) each configured to become open or closed (Fig. 26 and associated paragraphs; EN: this denotes a deadman switch. In this case, the contacts matching this portion are the Left-Hand Push-Button Switch, particularly L3 with subsets (L3-1 and L3-2)). "First and second main contacts (sw1a, sw2a) each configured to assume ... (Fig. 26 and associated paragraphs; EN: In this case, the left-Hand Push-Button Switch with L1 and L2 respectively

Art Unit: 2129

representing these circuits)."Wherein the second deadman switch (1b) has: Fifth to ... contacts (msw1b, msw2b, msw3b, msw4b) each configured to become open or closed (Fig. 26 and associated paragraphs; *EN: this denotes a deadman switch. In this case, the contacts matching this portion are the Right-Hand Push-Button Switch, particularly R3 with subsets (R3-1 and R3-2).*) "Third and fourth main contacts (Sw1b, sw2b) each configured to assume," (Fig. 26 and associated paragraphs; *EN: in this case, the Right-Hand Push-Button switch with R1 and R2 respectively representing these circuits).* "Wherein the two switching means are first and second switching means, the first switching means having first and second normally open contacts (R11, R12) and a ninth normally closed contact (R13); and the second switching means having third and fourth normally open contacts (R21, R22) and a tenth normally closed contact (R23)" (Figure 20 and associated paragraphs; *EN: in this circuit, which is closely related to the circuit disclosed in 26, it discloses circuits RL1-1 and RL1-2 which are both normally open as seen in the describing paragraphs as well as RL1-4 and RL2-4 which are normally closed contacts).* "Wherein the first enabling signal circuit (c1) includes the first normally open contact (R11) of the first switching means connected in series with a parallel circuit parallel connecting the first and third main contacts

Art Unit: 2129

(sw1a, sw1bb); and the second enabling signal circuit (c2) includes the third normally open contact (R21) of the second switching means connected in series with a parallel circuit parallel-connecting the second and fourth main contacts (Sw2a, sw2b)" (See Fig. 20 and 26 and associated paragraphs; *EN: both disclose set ups linking the relays to the various parallel switches disclosed by this portion of the claim*). "Wherein the first monitor circuit (c3) connects the first switching means in series with a parallel circuit parallel connecting a first series circuit (c31) in which the first and fifth contacts (Msw1a, msw1b) and tenth normally closed contact (R23) of the second switching means are connected in series and a second series circuit (c32) in which the third and seventh contacts (Msw3a, msw3b) and the second normally open contact (r12) of the first switching means are connected in series;" (Fig. 11, 26, and 20 and associated paragraphs; *EN: Fig 11 discloses the Relay (RL) being in series with the discussed circuits which are similar to those disclosed in figures 20 and 26*).

Terada discloses, "and the second monitor circuit (C4) connects the second switching means in series with a parallel circuit parallel connecting a third series circuit (C41) in which the second and sixth contacts (msw2a,msw2b) and the ninth normally closed contact (r13) of the first switching means are

Art Unit: 2129

connected in series, and a fourth series circuit (c42) in which the fourth and eighth contacts (msw4a, msw4b) and the fourth normally open contact (R22) of the second switching means are connected in series" (C3, particularly L23-43; *EN: this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention. Further, Looking particularly at Figure 20 of the Fukui reference, this portion of the claim is covered by R3-1, L3-1, RL1-4, R3-2, L3-2, and RL1-3, in combination with the discussion in Terada of the use of multiple circuits. The basic circuit structure of the applicant's invention is disclosed by the Fukui reference, the only difference being a second copy of the L3-R3 circuit set up found in Figure 20 of the Fukui reference. Merely replicating a portion of a previously made invention is not a novel addition to the invention).*

Watanabe, Fukui, and Terada analogous art because both involve deadman switches and robots.

At the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe with that of Fukui and Terada in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having

Art Unit: 2129

numerous circuits to ensure safety of the person training the robot.

The motivation for having the circuit make up include an emergency halt set up for both releasing and pushing too hard on the pendant in order to "prevent[[ing]] an accident due to contact with the machine during work" (Fukui, C1, L15-20) by using circuits to prepare a deadman switch to protect the user.

The motivation for having numerous circuits would be because using the circuits allows the system to "allow a robot to operate on the condition that all of the plurality of switches are in an on state" (Terada, C3, L23-43) which adds redundancy to the circuit and protects the user from harm.

Therefore at the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe, Fukui, and Terada in order to have the circuit make up required in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

As per **claim 4**, Watanabe discloses, "A teaching pendant enabling device including n ... enabling signal circuits each configured to selectively output an enabling signal for enabling a teaching signal given to a mechanical apparatus in accordance

Art Unit: 2129

with operated states of n deadman switches each configured to assume a first off-state when unoperated, an on-state when half-operated, and a second off-state when completely operated, comprising:" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). "in accordance with any one of operated positions including a first position assumed in an unoperated condition, a second position assumed in a half-operated condition, and a third position assumed in a completely operated condition" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*). "Each configured to assume an off-state at the first and third positions and an on-state at the second position" (C6, particularly L23-35; *EN: This denotes a teaching pendant that ceases operation with deadman switches when the teaching pendant is pushed past a threshold, or released*).

However, Watanabe fails to explicitly disclose, "n switching means each configured to open/close an enabling signal output line of a respective one of the n enabling signal circuits;", "n monitor circuits each configured to actuate a respective one of the n switching means in accordance with

Art Unit: 2129

results of detection of the operated states of the n deadman switches" , "Wherein each of the n deadman switches has: two sets of normally closed contacts each set including n normally closed contacts, each normally closed contact configured to become open or closed" " n main contacts", "Wherein each of the n switching means has two normally open contacts and a normally closed contact", "Wherein the i th ($1 < I < n$) enabling signal circuit of each of the n enabling signal circuits includes a first normally open contact of the i th switching means connected in series with a parallel circuit parallel connecting the i th main contacts of each of the n deadman switches", "Wherein the i th ($1 < I < n$) enabling signal circuit of each of the n enabling signal circuits includes a first normally open contact of the i th switching means connected in series with a parallel circuit parallel connecting the i th main contacts of each of the n deadman switches; and Wherein the i th monitor circuit of each of the n monitor circuits connects the i th switching means in series with a parallel circuit parallel connecting a first series circuit in which the i th normally closed contacts of a first set of each of the n deadman switches and a normally closed contact of any one of the switching means except the i th switching means are connected in series, and a second series circuit in which the i th normally closed contacts of a second

Art Unit: 2129

set of each of the n deadman switches and a second normally open contact of the i th switching means are connected in series."

Fukui discloses, " n switching means each configured to open/close an enabling signal output line of a respective one of the n enabling signal circuits" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *This denotes various circuits associated with the teaching pendant. The two switching means are shown in figure 20, R1 and L1 respectively. The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3).* " n monitor circuits each configured to actuate a respective one of the n switching means in accordance with results of detection of the operated states of the n deadman switches" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *The Monitoring circuit (that which monitors which is active, allowing things to pass through or not to pass through) is R3 and L3).* "Wherein each of the n deadman switches has: two sets of normally closed contacts each set including n normally closed contacts, each normally closed contact configured to become open or closed" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN:

Art Unit: 2129

Looking particularly at Figure 20, this circuit discloses circuits L3-1, and L3-2 which correspond to possible switching configurations associated with this section. When combined with the Terada reference which discloses using a plurality of circuits for the development, any number of circuits could be used). "n main contacts" (Fig. 26 and associated paragraphs; EN: In this case, the left-Hand Push-Button Switch with L1 and L2 respectively representing these circuits). "Wherein each of the n switching means has two normally open contacts and a normally closed contact" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: Looking particularly at Figure 20, this circuit discloses circuits R1 and L1 (open) and RL1-1 (Closed)). "Wherein the ith ($1 < I < n$) enabling signal circuit of each of the n enabling signal circuits includes a first normally open contact of the ith switching means connected in series with a parallel circuit parallel connecting the ith main contacts of each of the n deadman switches; and Wherein the ith monitor circuit of each of the n monitor circuits connects the ith switching means in series with a parallel circuit parallel connecting a first series circuit in which the ith normally closed contacts of a first set of each of the n deadman switches and a normally closed contact of any one of the switching means

Art Unit: 2129

except the *i*th switching means are connected in series, and a second series circuit in which the *i*th normally closed contacts of a second set of each of the *n* deadman switches and a second normally open contact of the *i*th switching means are connected in series" (Fig.1-4, 8-29, and Fig.35-36 along with associated paragraphs. C22, particularly L5-68, C13, and C24 particularly L1-33; EN: *These circuits appear to disclose approximately what the applicant is describing. Given the confusing nature disclosed in the 112 rejection above, the examiner is not able to connect the circuits exactly).*

Terada discloses, " $(n > 3)$ " (C3, particularly L23-43; EN: *this denotes a deadman switch being made up of a plurality of switches, which when combined with the clear disclosure of similar circuits disclosed by Fukui, would cover this invention. Further, Looking particularly at Figure 20 of the Fukui reference, this portion of the claim is covered by R3-1, L3-1, RL1-4, R3-2, L3-2, and RL1-3, in combination with the discussion in Terada of the use of multiple circuits. The basic circuit structure of the applicant's invention is disclosed by the Fukui reference, the only difference being copies of the various circuit set ups found in Figure 20 of the Fukui reference. Merely replicating a portion of a previously made invention is not a novel addition to the invention).*

Watanabe, Fukui, and Terada analogous art because both involve deadman switches and robots.

At the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe with that of Fukui and Terada in order to have the circuit make up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

The motivation for having the circuit make up include an emergency halt set up for both releasing and pushing too hard on the pendant in order to "prevent[[ing]] an accident due to contact with the machine during work" (Fukui, C1, L15-20) by using circuits to prepare a deadman switch to protect the user.

The motivation for having numerous circuits would be because using the circuits allows the system to "allow the robot to operate on the condition that all of the plurality of switches are in an on state" (Terada, C3, L23-43) which adds redundancy to the circuit and protects the user from harm.

Therefore at the time of invention it would have been obvious to one skilled in the art of teaching pendants to combine the work of Watanabe, Fukui, and Terada in order to have the circuit make up required in order to have the circuit make

Art Unit: 2129

up to have an emergency set up for both releasing and pushing too hard on the teaching pendant, as well as having numerous circuits to ensure safety of the person training the robot.

Response to Arguments

7. Applicant's arguments with respect to claims 1-2 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The examiner requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line no(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben M.

Art Unit: 2129

Rifkin whose telephone number is (571) 272-9768. The examiner can normally be reached on Monday through Friday 9:00 AM-6:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 14, 2009

Ben Rifkin
Examiner
Art Unit 2129

/David R Vincent/
Supervisory Patent Examiner, Art Unit 2129